**Genetics Using Punnett Squares Guided Notes**

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A PUNNET SQUARE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Terms to Know**

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| Alleles |  |  |
| Homozygous |  |  |
| Heterozygous |  |  |
| Hybrid |  |  |
| Dominant |  |  |
| Recessive |  |  |
| Phenotype |  |  |
| Genotype |  |  |
| Ratio |  |  |

**How to use a monohybrid (one trait) Punnett Square**

 The parents’ alleles go on the outside of the square

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 1. Drop the letters on the top, into each square

 2. Move each letter on the side, into each square

BB x bb 3. The Uppercase letter should ALWAYS go first.

 Results:

 Phenotypic:

 Genotypic:

**What do the results show us?**

If “B” is the dominant allele for black and “b” is the recessive allele for brown, then we make predictions about the outcomes using the Punnett Square.

**How to use a Punnett Square**

Let’s look at another Punnett Square and predict the outcome.

**“T**” is the dominate allele for tallness and “**t**” is the recessive allele for shortness

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 T t **What are the Results:**

 Phenotypic:

 T

 Genotypic:

 t

**Examples:**

1. Now that we have learned the basics of genetics lets walk though some examples using Punnett Squares.

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Let’s say: Parents in this cross are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Ww).

W- dominant white What percentages of the offspring will have violent

w- recessive violet flowers?

2. Red hair (R) is dominant over blond hair (r). Make a cross between a heterozygous red head and a blond.

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What percentage of the offspring will have red hair?

3. In pea plants, tall pea plants (T) are dominant over short pea plants (t). Construct a Punnett Square for a heterozygous tall pea plant and a short pea plant.

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What are the percentages of the 2 different phenotypes?

Tall: Short:

4. Black eyes (R) is dominant over red eyes (r) in rats. Make a cross between a homozygous rat with black eyes and a rat with red eyes.

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What is the possibility of a red eyed offspring?

**APPLY YOUR KNOWLEDGE ANSWERS**

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4.

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